Summary of the April 1-2, 2003,

Region 6 EPA/State UIC Class II

Area of Review (AOR) Summit

Main Issue: **Are Region 6 DI and Delegated Class II UIC Programs Implementing AOR Requirements to Effectively Protect USDWs from Contamination by Injection Activities as Required by the Safe Drinking Water Act?**

All five Region 6 State Class II Underground Injection Control (UIC) Programs indicated that they felt they are effectively implementing the AOR requirements by using a fixed radius because:

1.) Very few surface breakouts that have been identified (approximately one a year).
2.) Limited confirmed drinking water well contaminations due to oil and gas activities have been reported by citizen complaints.
3.) Water well drillers have reported very few occurrences of unusable quality water discovered during the drilling of drinking water wells. (Water well drillers are licensed and are required to file such reports with the State.)

Region 6 pointed out that the UIC Program, as defined in the Safe Drinking Water Act, is a preventive program not a reactionary program. By the time there is a surface breakout, or contamination of a drinking water source, it is too late and the contamination hasn't been prevented. Region 6 also pointed out that the protection level required is 10,000 TDS and that monitoring surface breakouts and drinking water well contaminations isn't an indicator of what is happening at the 10,000 TDS level.

Region 6 proposed that a zone of endangering influence (ZEI) calculation be made to ensure that the fixed AOR used by the States was protective and the pressure influence from the injection well didn't cause potential contamination of a USDW through an artificial penetration (AP) located outside the fixed radius.

The States indicated that the ZEI calculation was suspect due to the uncertainty of the input parameters and the underlying assumptions for the development of the equation (i.e., homogeneous, isotropic, infinite sandstone reservoirs.) Region 6 indicated that the input parameters for the ZEI calculation were the same parameters needed for the evaluation of the permit. If the data is suspect, the permit evaluation may not be valid. Region 6 stressed that the ZEI calculation was a simple calculation that can be used as a tool to identify potential pressure buildup issues. If the calculation shows a potential pressure influence outside the fixed radius, then the input parameters might need to be revisited or the wells within the pressure influence should be evaluated. Another possible solution if the ZEI is greater than the fixed radius is to reduce the permitted injection volume until the calculated ZEI is less than or equal to the fixed radius. This is the solution utilized by the Region 6 DI UIC Program.

Region 6 also indicated that for an enhanced recovery injection well a material balance should be performed to make sure there is no pressure increase due to fluid accumulation. I.e., injection is equal to or less than production.

Region 6 also indicated that its DI UIC Program obtained initial static fluid levels for injection wells prior to permitting the well so the current reservoir pressure could be determined. This reservoir pressure could determine if the well would be permitted or not. The Region encouraged the State UIC Programs to do this also. Region 6 also discussed obtaining fluid levels annually for injection wells, or nearby accessible APs, to monitor the pressure buildup in their reservoirs.

The States indicated that the surface breakouts only occurred at undocumented wells and those wells wouldn't be evaluated during any AOR review since they are not documented.

The States emphasized again that they felt they were running effective programs not perfect programs. While they admitted that there were injection wells being permitted whose pressure influence exceeded the fixed radius, they didn't feel that the additional burden on the operator and State UIC staff to perform a ZEI calculation, and obtain and evaluate well records outside the fixed radius was justified. This is based on the lack of surface breakouts and drinking water well contamination events.

Secondary Issue: **Region 6 was concerned with the development of reservoir over-pressurization due to injection.**

Region 6 indicated that in the DI program they were noticing an increasing number of requests for modifications to increase injection pressure. Region 6 equates this to a large number of injection zones becoming over-pressured. The States indicated they aren't seeing a lot of requests to increase injection pressure so this trend isn't universal throughout the Region.

ACTION ITEMS

The States will hold discussions with the Ground Water Protection Council (GWPC). Based on these discussions GWPC may propose a workplan to EPA to gather additional information to assess the effectiveness of AOR evaluation.

Region 6 indicated that the key discussion points of the Summit would be discussed with Region 6 Senior Management and it would be a Management decision on how to proceed with this issue.